

Reflections on Promoting Rural Development in Mountainous Areas under the "Window of Qingtian" Initiative for New-Era Beautiful Countryside: A Case Study of Malingjiao Village, Zhenbu Town, Qingtian County

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Abstract Within the context of the "Window of Qingtian" initiative for constructing beautiful countryside in the new era, this study focuses on Malingjiao Village in Zhenbu Town, Qingtian County, exploring innovative approaches and practical models for rural revitalization in mountainous areas. By employing a combination of field research, policy analysis, and case studies, this research deeply analyzes the specific measures implemented in Malingjiao Village, including infrastructure enhancement, integration of primary, secondary, and tertiary industries, revitalization of collective assets, ecological conservation, and cultural heritage preservation. The results indicate that, by pursuing strategies of shared prosperity, agricultural-tourism integration, and integrated development of primary, secondary, and tertiary industries, the village has successfully optimized its industrial structure, expanded the collective economy, increased villager incomes, and improved the ecological environment. This study not only provides a referential demonstration model for beautiful countryside construction throughout Qingtian County but also offers empirical and theoretical support for rural revitalization in mountainous regions across southwestern Zhejiang and even the entire province.

Key words "Window of Qingtian", Beautiful countryside, Integration of primary, secondary, and tertiary industries, Demonstration model

0 Introduction

Qingtian County, as a nationally renowned hometown for overseas Chinese, is endowed with rich natural and cultural resources. In recent years, driven by Zhejiang Province's rural revitalization strategy and leveraging its unique advantages related to overseas Chinese communities, Qingtian has been dedicated to creating an upgraded model of the new era beautiful countryside—the "Window of Qingtian", aiming to showcase the superiority of the socialist system and governance through the overseas Chinese community, and comprehensively promote the integrated development of rural ecology, culture, and economy. Over the years, Qingtian County has established a solid foundation and ecological advantages in beautiful countryside construction. Currently, the county's forest coverage rate reaches 80.91%, with air quality excellence rate at 98.1%, making it a typical "natural oxygen bar"^[1]. As a representative achievement of Zhejiang's "Thousand-Village Demonstration and Ten-Thousand-Village Improvement" project, the "Window of Qingtian" has become a shining example of local beautiful countryside construction. It continues to play a unique demonstrative role in ecological civilization, open economy, governance efficiency, industry-village integration, and cultural inheritance, exploring a development path with distinct local characteristics for mountainous rural revitalization.

Malingjiao Village in Zhenbu Town is located in western

Qingtian County, approximately 51 km from the county seat. The village governs nine resident groups with a registered population of 1 438. It features diverse topography, beautiful ecological environment, rich natural resources, and a long history. It has 29.27 ha of arable land and 655.93 ha of forested area, with a forest coverage rate of 86%, representing a typical small mountain village in southwestern Zhejiang. In recent years, adhering to the principle of "green development and ecological prosperity", Malingjiao Village has leveraged its natural resource advantages and preserved the architectural style of ancient villages. Through institutional innovation, the village has revitalized idle land resources such as "marginal land" and "old houses", repurposing 2 ha of land for homestay tourism, breaking development bottlenecks, and expanding new industrial paths. Concurrently, the "pre-circulation" model has been implemented under the framework of Jiaxing City's regional collaboration and assistance initiatives. Through the establishment of a township-level ecological strong village corporation, 3.33 ha of land in Malingjiao Village has been systematically consolidated. Adopting a tripartite cooperation mechanism involving "corporate entities (strong village corporation + technical partners) + village collectives + individual farmers", a unified pre-circulation agreement has been formalized to enable contiguous land management and large-scale agricultural development. This initiative has successfully attracted Zhejiang Bifeng Agricultural Development Co., Ltd. to develop a Mountain-Sea Collaborative Rice-Crop Rotation Common Prosperity Base, featuring advanced digitized greenhouse facilities and specialized orchards for premium fruit cultivation. Simultaneously, the village integrated surrounding agricultural tourism resources, focusing on rural sightseeing, agricultural experiences, leisure tourism, and cultural and

Received: December 19, 2024 Accepted: March 28, 2025

Supported by Basic Scientific Research Operating Funds Program for Provincial Higher Education Institutions of Zhejiang College of Construction.

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creative activities. By excavating local farming, landscape, and folk cultures, the village vigorously developed leisure agriculture and promoted agriculture-tourism integration, accelerating integration of primary, secondary, and tertiary industries and green industrial transformation. This has formed an agricultural industrial system dominated by rice, medicinal herbs, flowers, and ecological breeding^[2], with emerging industries such as rural homestays and ecotourism achieving remarkable results. The village collective annual income increased by 120 000 yuan, reaching 719 000 yuan in 2023, with operating income of 363 600 yuan. This preliminary achievement in resource aggregation, rural revitalization, and common prosperity has improved villagers' living standards, transformed the village's appearance, and manifested initial "beautiful economy" benefits.

1 Main measures

1.1 Adhering to planning guidance Based on Malingjiao Village's development foundation and demands, teachers and students from Zhejiang College of Construction participated in local Beautiful Countryside construction through the "Three Rural Development Campaigns" summer social practice program under the "Thousand-Village Demonstration and Ten-Thousand-Village Improvement" project. By fully considering historical evolution, local customs, and integrating tourism, industries, culture, and social resources, they formulated rural construction plans to deeply analyze the village's current status and development trends. This clarified phased goals and tasks, aiming to build a "Qingtian Window" initiative for new-era beautiful countryside development with distinctive features of southwestern Zhejiang mountainous areas, forming a strategic framework for integrated industrial development and long-term rural revitalization. Through innovation in planning and design, rural revitalization has been boosted, providing new ideas and new paths for the construction of beautiful local villages and the sustainable development of industries.

1.2 Innovating development and operation models Focusing on expanding the village collective economy, increasing farmers' income, and advancing beautiful countryside construction, Malingjiao Village explored innovative models by revitalizing idle stone-built houses. Through attracting investments, establishing strong village corporation, and introducing social capital, it launched renovation plans for old villages and houses, strengthened the allocation of resource factors, activated underutilized rural resources. Consequently, this optimized resource allocation, transformed idle rural assets into capital, and promoted the "resource-to-equity, capital-to-shares, farmers-to-shareholders" mechanism. These efforts expanded collective economic channels, fostered collaborative development among households, villages, and enterprises, and ignited endogenous growth momentum in rural economic development.

1.3 Emphasizing architectural heritage continuity During the renovation of traditional villages, Malingjiao Village prioritized preserving original rural textures, spatial characteristics, and re-

gional architectural styles. It deeply explored the cultural essence of traditional residential and public buildings, integrating them with contemporary architectural aesthetics. For symbolic spaces like post stations, ancestral halls, and libraries, low-cost and small-scale transformation methods were adopted to reactivate their public functions to promote rural cohesion and cultural inheritance^[3]. Furthermore, residential buildings retained historical traces while incorporating modern public services, creating forms that blend contemporary needs with local culture. The renovated buildings not only better integrate into the local natural landscape and cultural environment but also more closely align with the actual rural life, stimulating villagers' cultural identity and participation enthusiasm, achieving a harmonious coexistence between architecture and landscape, and further enhancing the overall cultural quality and villagers' quality of life in the beautiful villages in the southwestern mountainous region of Zhejiang.

1.4 Deepening industrial integration In advancing the construction of beautiful countryside, Malingjiao Village has adopted a comprehensive approach rooted in traditional settlement preservation and cultural inheritance, supported by its superior ecological environment and enriched with local folk customs. Integrating natural landscapes with humanistic elements, the village emphasizes the harmonious fusion of "people, culture, industry, and habitation" while promoting cultural preservation and innovation. Leveraging its ecological advantages, pastoral scenery, and industrial strengths, the village focuses on extending, enhancing, and supplementing industrial chains to establish comprehensive agricultural and rural industry systems. With meticulous craftsmanship, the village has created distinctive multifunctional ecological-cultural spaces such as the "Rice-Crop Park Cultural Station", hosting cultural festivals like "Lilies in the Heartland" and events including rice field music festivals and harvest celebrations. These venues integrate public services, cultural exhibitions, study tours, training programs, and recreational activities. Artistic endeavors such as photography and sketching are actively encouraged. The village explores innovative models for traditional settlement conservation and comprehensive rural revitalization, vigorously developing new formats including eco-agriculture, sightseeing farming, shared agriculture, wellness-oriented agriculture, cultural creativity, and rural tourism. This initiative drives the development of related industries such as catering, accommodation, and retail, fostering cross-sector integration and coordinated advancement of primary, secondary, and tertiary industries in rural areas. By extending agricultural and rural industrial chains, the village effectively increases farmers' income and propels comprehensive industrial and economic revitalization across the village.

2 Problems

2.1 Weak infrastructure Due to incomplete infrastructure, the layout of rural housing needs optimization, and the surrounding environment requires urgent improvement. Aging outdated public service facilities are prevalent, failing to meet growing tourist de-

mands. Thus, this limitation restricts the village's tourism potential and industrial development space. An underdeveloped logistics system with high operational costs, coupled with insufficient shopping and cultural entertainment facilities, hinders efficient urban-rural resource exchange. This restricts the sales channels of agricultural products and the inflow of external supplies, negatively impacting rural economic diversification and residents' quality of life.

2.2 Low labor force quality Due to a large number of young rural laborers migrating to cities in search of better job opportunities and income, the proportion of left-behind elderly and children has increased, resulting in a lack of high-quality labor force. This has caused an imbalance in the population structure and continuous loss of various resource elements. Aging populations and increased part-time employment in local rural areas are particularly prominent, and there are obvious constraints on factors such as talent. In particular, there is a lack of comprehensive rural construction talents and management entities who understand technology and business operations. The business concepts and methods are relatively lagging behind, and the problem of village hollow-out continues to accumulate, which to some extent affects the endogenous driving force and vitality for development, and also fails to meet the needs of modern agricultural industry development and beautiful rural construction.

2.3 Low industrial competitiveness Overall, the local rural economy has not yet moved beyond small-scale and fragmented operations, lacks support from diversified industries, and the development of industries is not closely linked, showing a trend of homogenization and simplification. The integration of production and village development needs to be deepened. The breadth and depth of new industry development are insufficient. Additionally, products lack creativity and personalized design. Insufficient participation and experience not only limit the effective utilization of rural resources, but also make their risk resistance weak, transformation and development lack momentum, and it is difficult to effectively respond to market fluctuations, thus affecting the stability and sustainability of the overall economy. This has become a short board in the revitalization and development of rural industries.

2.4 Lagging regional brand development Weak brand awareness and low brand influence, coupled with the relatively lagging development and cultivation of regional public brands in rural areas, have hindered the establishment of a unified regional public brand. Efforts in comprehensive promotion, branding, and market outreach remain inadequate, particularly in creating regionally renowned brands with strong market impact and reputation both within and outside the province. The limited appeal to tourists and unstable tourist source markets have resulted in low product recognition, diminished market competitiveness, and suboptimal comprehensive benefits. Consequently, the Beautiful Countryside Initiative and the development of the "Beautiful Economy" have yet to fully achieve a mutually reinforcing and complementary relationship.

3 Suggestions

3.1 Strengthening organizational leadership Efforts should focus on creating the "Window of Qingtian" for new era beautiful countryside development and upgrading mountainous beautiful countryside in accordance with the requirements of new era beautiful rural construction. Relevant departments and local governments at all levels must strengthen organizational leadership. Moreover, it is crucial to clarify responsibilities, improve coordination, incorporate construction tasks and key projects into government priorities, and establish a collaborative long-term mechanism of "government leadership, societal participation, and market operation". On this basis, innovation and entrepreneurship platforms should be built to attract universities, research institutes, and enterprises through industrial chain cooperation and industry-university-research integration, fostering a comprehensive innovation system. To ensure effective policy implementation, governments and departments at all levels should further refine tracking and evaluation mechanisms for policy support and project advancement, regularly assess development outcomes, implement merit-based incentive systems that reward excellence and penalize underperformance, and enhance execution efficiency and management capabilities. Additionally, cross-departmental collaboration mechanisms involving agriculture, culture, tourism, environmental protection, science and technology, and other sectors must be established to foster efficient communication and streamlined decision-making processes. It is essential to enhance top-level design, guided by the principle of "comprehensive regional planning and phased implementation".

Systematic and actionable implementation plans should be formulated based on villages' natural conditions, industrial foundations, and cultural characteristics to ensure alignment between policy guidance and execution pathways. The role of grassroots Party organizations must be further reinforced. Through mechanisms such as "Party member responsibility zones" and "villager participation groups", active engagement of local cadres and residents in development initiatives should be ensured, thereby strengthening villagers' sense of ownership and commitment. For publicity and outreach, modern communication tools should be fully leveraged. Multi-level, multi-channel campaigns via internet TV, newspapers, WeChat official accounts, Weibo, Douyin (TikTok), and other media platforms should be conducted to enhance public awareness and participation. Efforts should focus on integrating social resources and pooling strengths from all sectors of society. Utilizing platforms like the "mountain-sea collaboration" initiative and the influence of local elites, a collaborative development scenario involving broad societal participation and diversified investments of funds and technology can be fostered. Activities such as on-site observation tours, achievement exhibitions, and expert lectures should be organized to deepen public understanding and support for the "Window of Qingtian" initiative—a new-era model for beautiful countryside development. This approach will cultivate a participatory atmosphere, drive the "Window of Qing-

tion" project toward tangible outcomes, and accelerate comprehensive rural revitalization and sustainable development in mountainous regions.

3.2 Improving policy and elemental guarantees It is imperative to uphold the principle of "more support, less extraction, and greater flexibility", establishing long-term mechanisms to safeguard innovation, entrepreneurship, and agricultural assistance. Continued increases in fiscal investment should prioritize funding for rural housing renovation, revitalization of idle land, environmental governance, agricultural infrastructure, and public service facilities. It is necessary to accelerate the improvement of rural infrastructure and public services, focusing on upgrading roads, drinking water systems, electricity, and telecommunications to ensure comprehensive coverage and functional optimization, thereby enabling rural residents to access equitable social resources. Efforts must be intensified to integrate and allocate agricultural support and farmer-benefiting funds more effectively. Greater investments should be directed toward nurturing business entities, enhancing farmer education, building innovation platforms, and developing regional public brands. This ensures precise and efficient utilization of funds to bolster the endogenous growth momentum and sustainability of the rural economy. Innovative multi-tiered financing models for rural development should be actively explored. By leveraging government investments to attract private capital, a diversified funding structure can be established.

It is necessary to provide preferential policies such as low-interest loans, tax reductions, and guarantee subsidies for new agricultural business entities, returning entrepreneurs, and agri-tech enterprises, effectively lowering financing costs and operational risks^[4]. Mechanisms for land transfer, land shareholding, and land revenue distribution should be innovated to invigorate rural development vitality. It is necessary to continue to intensify investment attraction efforts by establishing dedicated service teams to offer "one-stop" support for enterprises and innovators, including project matching, financing assistance, and talent recruitment, and improve administrative and service efficiency to expedite project implementation. Additionally, it is necessary to provide diversified resources such as specialized training, technical guidance, and market promotion to foster a conducive environment for innovation and entrepreneurship.

3.3 Emphasizing rural ecological environment protection It is crucial to uphold the principle of "ecological priority and green development", strengthening holistic ecological and environmental protection in rural areas. Through scientifically sound land-use planning, strict delineation of ecological conservation redlines, and integrated management of mountains, waters, farmland, and forests, effective protection of natural ecological zones such as rivers, forests, and wetlands must be ensured. This will establish ecological spaces where humans and nature coexist harmoniously. A sustainable development mindset must be fostered by vigorously advancing modern eco-circular agriculture. Promote traditional ecological farming models such as Qingtian's unique "rice-fish co-

culture system", establish modern irrigation systems and circular agricultural waste management, and adopt eco-friendly technologies like bio-fertilizers, precision irrigation, and farmland pollution control. Rational utilization of agricultural natural resources will enhance economic, ecological, and social benefits, thereby synchronizing ecological restoration with industrial development. For the renovation of old rural houses in mountainous areas, priority should be given to preserving the villages' overall character. Adhering to the principle of "local sourcing of materials", natural indigenous resources such as wood, stone, and bamboo should be prioritized to minimize long-distance transportation of building materials and reduce environmental impacts.

During construction, energy-saving technologies and renewable energy sources—such as solar power and rainwater harvesting systems—should be prioritized to achieve low-carbon, eco-friendly, and efficient buildings and public facilities. This will enhance villages' ecological resilience and climate adaptability^[5]. Additionally, it is necessary to emphasize soil and water conservation and ecological restoration. In village greening and road planning, local natural resources and cultural characteristics should be integrated to promote a "green governance" model, and develop context-specific green infrastructure such as ecological corridors, rain gardens, permeable pavements, buffer zones, wetland parks, and biodiversity corridors. These measures will protect water sources and wildlife habitats, boost biodiversity and green coverage, enhance rural ecosystem diversity and stability, and achieve a win-win scenario for sustainable development and eco-friendly living environments^[6].

3.4 Continuously promoting rural Integration of Primary, Secondary, and Tertiary Industries Leveraging the broader context of the "Window of Qingtian" initiative for new-era beautiful countryside development, efforts should be rooted in traditional villages, supported by high-quality ecological environments, and enriched with local folk culture. Guided by the principles of "linkage, integration, expansion, and enhancement", strategies such as "technology +", "industry +", "tourism +", and "culture +" should be implemented. It is necessary to focus on multi-dimensional development encompassing integration of primary, secondary, and tertiary industries, technological innovation, ecological circularity, and village-industry synergy. Local characteristic rural tourism should be actively developed through an "agriculture + culture + tourism" model, integrating Qingtian's world-class cultural heritage (*e. g.*, rice-fish symbiosis system, Qingtian stone carvings) with ecological resources. Efforts should focus on developing characteristic homestays, cultural festivals, intangible cultural heritage experiences, and eco-picking, while constructing cultural-tourism stations and nature education bases to promote eco-agriculture, cultural creativity, and tourism leisure industries. This extends the agricultural industrial chain. Thus, it drives multi-sector integration, transforms traditional industries, enhances value chains, and integrates modern agriculture with beau-

tiful countryside construction.

It is necessary to prioritize the preservation and development of local intangible cultural heritage, restore historical sites, protect traditional architecture, and build cultural museums, utilize digital technologies to integrate historical and cultural elements into modern designs, enabling innovative transformation of cultural resources and ensuring their sustainable inheritance^[7]. Brand awareness should be strengthened through the "One Village, One Product" strategy, cultivating local culture, enhancing the reputation of "Window of Qingtian", building a full industrial chain for Qingtian's local specialties, and creating a "golden business card" for rural Qingtian. This boosts soft power, achieves deep industry-village integration, and establishes a demonstration model for Qingtian and southwestern Zhejiang.

3.5 Building a long-term mechanism to build thriving villages and increase people's well-being Taking the creation of the "Window of Qingtian" initiative for new era beautiful countryside development as an opportunity, the path of shared prosperity should be upheld to comprehensively advance the construction of a rural revitalization interest community. Efforts should address shortcomings in basic public services, infrastructure, and talent development to enhance rural human capital and economic vitality. Using strong village companies as platforms, the collective economy should be expanded by establishing tight interest linkage mechanisms among enterprises, village collectives, cooperatives, and farmers, maximizing shared benefits. Reforms on rural contracted land, homesteads, and collective profit-oriented construction land should be accelerated. Idle and low-efficiency land and old houses should be revitalized into productive assets, exploring new uses and cultivating new industries to achieve multi-dimensional resource development. A multi-tiered income distribution system (*e. g.*, villager dividends, cooperative profit returns) should be improved to support farmers' participation in land transfers, collective equity, and profit sharing, ensuring efficient land use and equitable income distribution.

Meanwhile, it is necessary to continue exploring new pathways to convert fiscal investments into collective assets through mechanisms such as share conversion based on equity quantification, dividend distribution, and profit returns^[8], ensuring collective assets directly benefit farmers. It is necessary to actively encourage neighboring villages to collaborate in development, exploring integrated rural-industrial models of "single-village projects, multi-village joint projects, and regional alliances". Through regional cooperation, stable economic partnerships should be established to achieve resource sharing, market expansion, joint project development, and mutual benefits. This will strengthen the collective economic capacity of villages and promote comprehensive rural revitalization and sustainable development.

3.6 Strengthening rural talent development Research institutes, expert teams, and high-level technological talents should be actively introduced to form an "industry + team + project + base"

innovation model. Agricultural technology demonstration bases and innovation incubation platforms should be established to introduce modern agricultural technologies and ecological governance solutions, empowering industries through technology and realizing industrial upgrading. To ensure long-term talent retention, a rural special talent fund should be established to provide high-level professionals with subsidies for housing, research, and entrepreneurship. It is necessary to further optimize supporting services such as healthcare, education, and school enrollment for their children, creating an attractive work and living environment to ensure talents are "recruited effectively and retained sustainably". It is urgent to continue prioritizing the cultivation of local talent. Furthermore, collaborate with universities and vocational schools to launch "Rural Revitalization Lecture Halls" and skill-training programs. It is necessary to enhance villagers' capabilities in agricultural production, business management, and digital applications, support practical training in e-commerce operations, rural tourism management, and homestay operations to facilitate their transition from traditional farmers to new-type professional farmers, strengthening vocational skills and entrepreneurial capacity. It is necessary to leverage policy and financial support to encourage young people to return to their hometowns for entrepreneurship, developing rural e-commerce, cultural creativity, and specialty industries.

Through systematic talent recruitment and local talent development, we can build a combined talent pool of external and local professionals to inject new vitality into the rural economy. It is necessary to fully harness the role of university students in building beautiful countryside, expand support for their social practice and innovation-entrepreneurship projects through the "Three Rural Development Campaigns" summer social practice program, encourage students to gain long-term practical experience in rural areas, deepen their understanding of local needs, translate innovative ideas into practical productivity, and promote the actual implementation of innovative design and entrepreneurship projects for college students^[9]. We need to strengthen policy guidance, funding, and technical training to attract more students to participate in beautiful countryside construction and industrial revitalization, injecting new momentum into rural development and advancing the "Window of Qingtian" initiative toward deeper implementation^[9].

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duction of grassland. Compared with the bare slope, the slope covered with grassland is more effective in reducing sand loss. Although the role of grassland in reducing runoff is relatively weak, its function in reducing sediment is very prominent. Grassland with high vegetation coverage can effectively intercept a large amount of precipitation, promote good infiltration of rainwater, enhance soil resistance to erosion, and significantly slow down the runoff rate, thus improving soil erosion resistance. In general, the effect of grassland on sediment interception is more significant than its effect on promoting precipitation infiltration and reducing runoff^[10].

3 Conclusions

The Ili River Basin shows the typical ecological characteristics of forest-grassland ecotone in Ili Region of Xinjiang. By analyzing the dynamic changes of vegetation cover in this area, we reached the following conclusions. (i) The maximum vegetation coverage observed in the central and western regions was lower than that in the eastern marginal regions, which shows that the maximum vegetation coverage in the basin as a whole was gradually increasing from west to east. In time series, the mean maximum vegetation coverage of Ili River Basin experienced significant fluctuations during the 15-year period from 2006 to 2020. (ii) During the study period, the ecological environment in the study area generally showed a trend of first decline and then gradual recovery. After 2010, the ecological situation gradually tended to be stable, but the areas with low vegetation coverage began to improve, while the areas with high vegetation coverage gradually deteriorated. This change may be related to significant changes in regional climate. (iii) The utilization of cultivated land and water and soil resources in the Ili River Basin, the Delta region and the upper and middle reaches was improper, and the significant changes in regional climate have led to the gradual deterioration of vegetation coverage^[11]. (iv) The vegetation coverage has a certain impact on surface runoff and the reduction of soil erosion.

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(From page 9)

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